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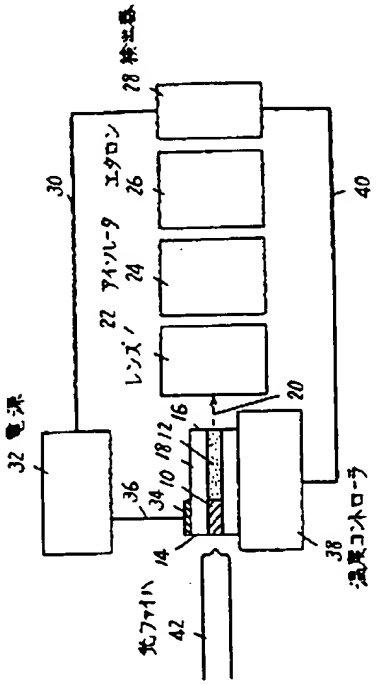
TITLE : SEMICONDUCTOR LASER DEVICE WITH STABILIZED FREQUENCY



ABSTRACT : PURPOSE: To contrive the shortening of a spectrum width and the stabilization of absolute frequency by using a semiconductor laser comprising an external resonator and an optical waveguide monolithically into one body and converting a frequency fluctuation of the laser beam into an intensity fluctuation by use of etalon, and accepting it by a detector and feeding back the accepted light signal to a semiconductor laser drive power source and a temperature controller electrically.

CONSTITUTION: An emitted laser beam 20 of a semiconductor laser 18 comprising an optical waveguide 1 arranged along the optical axis direction of an active region 10 and being transparent to the oscillation wavelength of said region, and being provided with a laser resonator composed of cleavage planes 14 and 16 is nearly collimated by a lens 22. That beam passes through an isolator 24 to remove an influence of reflected light on the semiconductor laser and passes an etalon 26 comprising a proper free spectrum region (FSR). Then it is accepted by a detector 28. The accepted signal is fed back to a semiconductor laser drive power source 32 and a temperature controller 38 by feedback loops 30 and 40 so as to restrain a variation in intensity.